Jurusan Teknik Informatika

Universitas Kristen Petra

UTS SEMESTER GASAL 2017/2018

Mata Kuliah : **Data Mining**
Hari/Tanggal : **Kamis / 18 Oktober 2017**
Waktu : **10.30 sd 12.30 WIB (120 menit)**
Sifat : **Open**

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1. Explain tasks of data mining and give an example of every task as follows.
   a. Prediction (5 points)
   b. Estimation (5 points)
   c. Association (5 points)
   d. Classification (5 points)
   e. Clustering (5 points)

2. Given the following data:
   42, 56, 88, 22, 60, 111, 30, 58, 36, 81, 29, 74, 115, 94, 102
   a. Partition into 3 Bins using equal-width (5 points)
   b. Partition into 3 Bins using equal-depth (5 points)
   c. Smoothing b) by bin means (5 points)
   d. Smoothing b) by bin boundaries (5 points)

3. Given the following table:

userId	Calls Duration (Minutes)	SMS (Total)	Data Counter (MB)
1	25000	24	4
2	40000	27	5
3	55000	32	7
4	27000	25	5
5	53000	30	5

   In the relation to Data Transformation, normalize *Calls Duration*, SMS and *Data Counter* using *max-min normalization* (0 to 1) and *z-score normalization* (10 points)

4. The following table represents attributes of cars in terms of their models. Construct a decision tree (ID3) based on the attributes (*Engine*, *SC/Turbo*, *Weight* and *Fuel Eco*) to classify whether a car is *Fast*. (45 points)

Model	Engine	SC/Turbo	Weight	Fuel Eco	Fast
Prius	small	no	average	good	no
Civic	small	no	light	average	no
WRX STI	small	yes	average	bad	yes
M3	medium	no	heavy	bad	yes
RS4	large	no	average	bad	yes
GTI	medium	no	light	bad	no
XJR	large	yes	heavy	bad	no
S500	large	no	heavy	bad	no
911	medium	yes	light	bad	yes
Corvette	large	no	average	bad	yes
Insight	small	no	light	good	no
RSX	small	no	average	average	no
IS350	medium	no	heavy	bad	no
MR2	small	yes	average	average	no
E320	medium	no	heavy	bad	no